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ABSTRACT

This study investigated whether or not Sights and Sounds, a filmstrip-record series originally designed for speech-hearing handicapped children, could produce perceptual discrimination learning of familiar sounds in primary level educable mentally retarded (EMR) children and whether EMR children were susceptible to perceptual learning via application of the stimulus Response (SR) concept of paired-associate learning. Twelve EMR students were randomly selected from three primary schools. Subjects were divided into experimental and control groups. A pretest, a treatment sequence, and a posttest were administered. Students were exposed to filmstrips which presented 12 familiar sounds, then were asked to identify the associated scenes in a test booklet. Data were analyzed using the Latin chi-square and the t-test. The results indicated that the filmstrips could produce auditory perceptual discriminative learning in EMR children at the primary school level of development. (Author)

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SPECIAL REPORT No. 747
COMPUTER-BASED PROJECT for the EVALUATION of MEDIA for the HANDICAPPED

Title: AUDITORY-PERCEPTUAL LEARNING IN EDUCABLE MENTALLY RETARDED CHILDREN

BACKGROUND

The Computer Based Project for the Evaluation of Media for the Handicapped, based on contract #OEC-9-423617-4357 (616) between the Syracuse (N.Y.) City School District and the Media Services and Captioned Films Branch, Bureau of Education for the Handicapped (United States Office of Education) for the five year period July 1, 1969 through June 30, 1974. The major goal is to improve the instruction of handicapped children through the development and use of an evaluation system to measure the instructional effectiveness of films and other materials with educable mentally handicapped (EMH) children, in-service training and media support for special teachers, and studies related to the evaluation process and the populations used.

The Project has concentrated on the 600 films and 200 filmstrips from the Media Services and Captioned Films (BEH - USOE) depository; however, specific packages from Project LIFE, various elementary math curricula, and selected programs from Children's TV Workshop have also been evaluated. The evaluation model used requires that: 1) objectives of materials be specified and written; 2) instruments be constructed to test and measure effectiveness; and, 3) children be the major sources of evaluation information. A number of instruments and methodologies are employed in the gathering of cognitive and affective data from 900 EMH children and 80 special teachers to make the effectiveness decisions. Over half of the EMH population can neither read or write; therefore, a unique Student Response System (SRS) is employed, consisting of a twenty station G.E.-1000 SRS which can be operated in a group or individual recording mode and is connected to a remote computer system. The computer capabilities consist of remote telephone connections to the Rome (N.Y.) Air Development Command, the Honeywell time-shared network, and the Schenectady (N.Y.) G E Research and Development Center; and batch mode capabilities of the Syracuse City Schools, Syracuse University, and various commercial sources.

In-service and media support activities provide on-the-job training for teachers, teacher aides, equipment, and materials to the special teachers in the city schools. The research activities have centered around investigations and special problems related to the development of the evaluation model. The four major areas considered are: 1) testing effects, 2) captioning effects, 3) special student characteristics; and, 4) evaluation procedures validation.

Documentation of the major activities appear in the five annual reports and the 600 evaluations prepared on materials used. Staff members were encouraged to prepare special reports and the attached paper is one of these. The opinions expressed in this publication do not necessarily reflect the position or policy of the Computer Based Project, the United States Office of Education, or the Syracuse City School District, and no official endorsement by any of the agencies should be inferred.

AUDITORY-PERCEPTUAL LEARNING IN EDUCABLE MENTALLY RETARDED CHILDREN

PURPOSE: The study investigated whether or not a filmstrip/record series, SIGHTS AND SOUNDS, originally designated for speech-hearing handicapped children, could behaviorally produce perceptual discrimination learning of familiar sounds in the city, house, farm, circus, orchestra, and at Christman stime in primary level educable mentally retarded children (EMR), and whether EMR children were susceptible to perceptual learning via an interesting application of the learning theory S-R concept of paired-associate learning incorporated in the evaluation instrument.

RATIONALE: Levie and Dickie (1973) indicate that instructional media selection should depend on "..... matching of media attributes to task-learner situation characteristics," and that this match, rather being content or subject oriented, should orient on "..... what media attributes are appropriate for the given task-learner situation?" (p. 861). The "task-learner" was the primary level EMR child whose susceptability to learning of this type of material is relatively unknown. The task-learner situation in this study could be fairly characterized as being a perceptual-discrimination task in learning; i.e., the identification of familiar sounds as those heard in the city, house, farm, etc. The salient media attribute of the task-learner" situation was the methodological procedure of pairing an iconic picture to a familiar sound as in S-R paired-associate learning. The generated question was whether the selected media attributes were appropraite to the task-learner situation.

The base level capability of primary level EMR children in identifying familiar sounds is also relatively unknown; therefore, an empirical observa-

tion of EMR students' base level capability in recognizing commonly encountered environmental sounds was provided by the study.

PROCEDURE: Twelve EMR students were randomly selected from three primary schools in a big city school district. Their ages ranged from 7 -8 years and their IQ was within the range of 54 to 75. The apparatus and materials of the present study consisted of the materials comprising SIGHTS and SOUNDS, (Captioned Films for the Deaf, USOE, HEW, Washington, D. C. 1973) consisting of 6 filmstrips, 6 records, and 10 test booklets, and a filmstrip projector and a record player.

In the filmstrip sequence, a story format was used in which a scarecrow (Johnny) visited a house, a city, a farm, etc., and thereby encountered the various sounds in their natural settings. Each filmstrip contained about 40 color frames depicting 40 iconic scenes of familiar sound settings; e.g., a ship docked in port was associated to a boat-horn sound. Accompanying the 40 frames were 12 "familiar" sounds along with the necessary explanatory dialogue.

A familiarization procedure consisted of pairing the sights (scene) and sounds (audio) were paired and a testing procedure where 12 sounds are presented sequencially and the subject identifies the associated scene in a test booklet.

A Lindquist (1953, p.292) Type VI, "Mixed" treatment design was employed in which the 6 filmstrips and the accompanying material was presented to each S in pairs either in an experimental (a pre-test, a treatment sequence, and a post-test) or in a control (no treatment) format. A Latin-square counter balancing design (Lindquist, 1953, p. 261) was used to balance out

the 3 different sequence effects in processing each pair of filmstrips through the pre-test, treatment, post-test phases of the experiment. The pre-test consisting of 12 test sounds which S had to identify verbally was administered to S on the first day for two of the units. The S_S' with identical pre-test and treatment schedules, viewed the filmstrip and heard the auditory dialogue on the second day. E rated their attending behavior of each of the 40 frames according to a list of categories. The post-test was administered on the third day to individual S_S and a transfer gain precent score was determined for each subject.

RESULTS: In the experimentally treated media units, the mean number of correct identifications, out of the 12 test sounds, was 50% in the pre-test and 71% in the post-test. The control treatment scores in the units were 54% in the pre-test and 50% in the post-test. These means were compared by a t test for correlated means which indicated that the difference favoring the experimentally treated units was significant at $X = .05 - .10$ level of probability.

CONCLUSION: These results indicate that the SIGHTS and SOUNDS filmstrip instructional media unit can indeed produce auditory perceptual-discriminative learning in EMR children at the primary school level of development.

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